From:	Leidy, Robert
To:	Patti H. Spindler
Cc:	Ziegler, Sam; Hashimoto, Janet; Bolt, Matthew; Wells, Kimberly; Krista L. Osterberg; Jade Dickens; Richard Gay; Jason W. Sutter; Susan T. Fitch
Subject:	EPA Review of ADEQ"s Proposed List of 85 Appendix B Waters
Date:	Friday, April 13, 2018 10:28:08 AM

Hello Patti,

At your request, we have reviewed ADEQ's proposed list and analysis of 85 Appendix B waters. Below we have provided general technical comments on the methodology for your consideration. These comments are based on review of the spreadsheet you provided and are not based on a jurisdictional analysis of the waters. We do not currently have enough information to provide more specific comments on your methodology or the application of the methodology to specific waters. We would be happy to continue to work with you to discuss the characteristics of specific waterbodies on the list and provide technical assistance if you have additional questions.

Best regards,

Rob Leidy

Isolated Terminal Lakes and Basins

ADEQ proposes that sixty-five (76%) of the evaluated waters do not meet the definition of waters of the United States because they are terminal lakes/basins or isolated lakes without outlets to downstream waters, including TNWs (Traditional Navigable Water). A conclusion that these lakes are not subject to CWA jurisdiction requires a finding that they are intrastate, isolated non-navigable waters and have no hydrologic connectivity to any regulated waterway, and no interstate or foreign commerce nexus (33 CFR 328.3(a)(3)).

From a cursory review of aerial photography, it appears that several of the evaluated waters have outlets with likely hydrologic connectivity to downstream waterways, including in one instance a TNW. We recommend that these waters be reevaluated to assess whether outlets provide hydrologic connectivity through surface or shallow subsurface pathways to regulated waterways. We also found that for all the evaluated isolated, terminal lakes and basins there is no evaluation of interstate or foreign commerce nexus. Several of the waters are likely navigable in fact by small watercraft for recreational or scientific purposes **and** are used or have the potential to be used for commerce purposes by interstate or foreign visitors. Examples of commerce use of these waters by interstate and foreign visitors include fishing, waterfowl hunting, bird watching, scientific research, and other recreational and commercial activities. We recommend that these waters be evaluated to assess whether they are navigable in fact and have interstate and foreign commerce nexus.

Complex Tributary Patterns

ADEQ concludes that several tributary waters have indistinct surface connections, or are disconnected to downstream waters, particularly downstream tributaries. A bed, bank, and an ordinary high-water mark (OHWM) characterize tributaries along high-gradient reaches, but these surface flow indicators become indistinct along low-gradient, valley reaches before connecting with downstream tributaries. Similarly, ADEQ concludes that several tributary

waters exhibit indistinct or complex surface hydrologic connections and pathways to downstream waters upon entering agricultural fields and ditch systems.
The loss or periodic disappearance of indicators of an OHWM on a tributary does not unequivocally prove that there is no significant hydrologic connection to downstream waters. Furthermore, the loss of surface channel indicators within disturbed, agricultural settings or human-altered floodplains does not necessarily eliminate hydrologic connectivity to downstream waters. Overland flow generates ephemeral streamflow within arid Southwest streams. Because of transmission losses in ephemeral tributaries, bed and bank indicators often become indistinct before a stream reaches its confluence with downstream waters. However, transmission losses in ephemeral tributaries recharge alluvial and regional aquifers, contributing to surface flows in downstream tributaries (EPA 2015). Surface and shallow subsurface hydrologic pathways can create a chemical, biological and hydrologic nexus between tributary waters. Also, ephemeral streamflow is a critical source of alluvium and sediment to downstream receiving waters (EPA 2015).

There is compelling scientific evidence that tributary flows that lose indicators of an OHWM upon reaching geomorphic settings such as agricultural fields and riparian floodplains due to transmission losses (*i.e.*, recharge) or land disturbances contribute water through shallow subsurface pathways to downstream waters. Such is especially true for streams/washes that terminate in the sandy, alluvial beds of river floodplains. Also, during moderate to high tributary discharges water may sheet flow across disturbed agricultural areas (as was observed for at least one water), thereby providing a surface and shallow-subsurface hydrologic connection to downstream waters. We recommend using the best available science on hydrologic pathways to reassess and inform your analysis of the likely hydrologic connectivity of several of the listed tributaries and downstream waters.

Non-navigable tributaries that are not relatively permanent, and their adjacent wetlands where such tributaries and wetlands have a significant nexus to a TNW, are waters of the United States (Memorandum, Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*, U.S. EPA and Department of the Army, December 2, 2008). A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream waters (*ibid.*).

Ephemeral vs. Intermittent Lakes

ADEQ classifies many of the of the lakes as ephemeral. Typically, ephemeral lakes will briefly fill during rain events and quickly dry, usually within 2 weeks to a month. Intermittent lakes remain filled with water for greater duration, often for several months, or longer. A cursory review of aerial photography within and between years suggests that many of the lakes classified by ADEQ as ephemeral may experience prolonged ponding. We recommend that the lakes classified as ephemeral be reevaluated to determine if they are more appropriately classified as intermittent based on the duration of ponding.

Reference

EPA. 2015. Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of Scientific Evidence. Office of Research and Development (EPA/600/R-14/475F). January 2015.

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